

Application No. 10/776,727

No. 5000-1-521

**IN THE CLAIMS**

I. (Currently Amended) A method for upstream traffic control for data frames in association with a plurality of buffers including at least a first, a second and a third buffer with a predetermined priority in transfer based upon service characteristic required in an Ethernet-based passive optical network, the method comprising the steps of:

providing a First In First Out (FIFO) scheduler for the first, second and third buffers, respectively; said FIFO scheduler performing a FIFO scheduling for said first, second and third buffers in sequence while utilizing a High Priority First Allocation (HPFA) algorithm in a round robin system;

(a) determining whether there is at least one data frame to transfer in the first buffer, said first buffer comprising a highest priority data buffer relative to said second buffer and said third buffer;

(b) if it is determined in step (a) that there is a data frame to transfer in the first buffer, determining whether the data frame does not exceed a low water mark indicative of a reference value set up to ensure the minimum transfer traffic;

(c) if it is determined in step (b) that the data frame in the first buffer does not exceed the low water mark, transferring the data frame stored in the first buffer and determining whether the data frame in a second buffer does not exceed the low water mark;

(d) if it is determined in step (c) that the data frame in the second buffer does not exceed the low water mark, then determining whether there is a data frame to transfer in a third buffer does not exceed the low water mark; and

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(e) if it is determined in step (d) that the data frame to transfer in the third buffer does not exceed the low water mark, then transferring the respective data frames stored in the second and third buffers;

(f) checking a status of the first buffer in the course of transferring the data frames stored in the second and/or third buffer in step (e), and if the data frame in the first buffer exceeds the low water mark, then interrupting the transference of the data frames stored in the second and/or third buffer and transferring the data frame stored in the first buffer with the highest priority; and

wherein if more than one buffer exceeds the low water mark, transferring the data from the buffer having the highest priority according to the HPFA algorithm.

2. (Original) The method for upstream traffic control in Ethernet-based passive optical network according to claim 1, further comprising the step of checking a size of data frames stored in the second and third buffers referring to the low water mark, and determining whether the transfer of the data frame is to be effected, if it is determined that there is no data frame to transfer in the first buffer in the step (a).

3. (Original) The method for upstream traffic control in Ethernet-based passive optical network according to claim 1, further comprising the step of transferring all the data frames stored in the first buffer, if it is determined that the data frame stored in the first buffer does exceed the low water mark in the step (b).

4. (Original) The method for upstream traffic control in Ethernet-based passive optical network according to claim 1, further comprising the steps of

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determining whether the data frame in the first buffer does not exceed the low water mark, if it is determined that the data frame stored in the second buffer does exceed the low water in the step (c), and transferring the data frames stored in the second buffer, if it is determined that the data frame stored in the first buffer does not exceed the low water mark.

5. (Original) The method for upstream traffic control in Ethernet-based passive optical network according to claim 4, further comprising the steps of first transferring the data frames stored in the first buffer and then in the second buffer, if it is determined that the data frame stored in the first buffer does exceed the low water mark.

6. (Original) The method for upstream traffic control in Ethernet-based passive optical network according to claim 1, further comprising the steps of determining whether the data frame in the first buffer does not exceed the low water mark, if it is determined that the data frame stored in the third buffer does exceed the low water in the step (d), and transferring the data frame stored in the third buffer, if it is determined that the data frame stored in the first buffer does not exceed the low water mark.

7. (Previously Presented) The method for upstream traffic control in Ethernet-based passive optical network according to claim 6, further comprising the step of first transferring the data frames stored in the first buffer and then in the third buffer, if it is determined that the data frame stored in the first buffer does exceed the low water mark.

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8. (Previously Presented) The method for upstream traffic control in Ethernet-based passive optical network according to claim 1, wherein the data frames stored in the first buffer include video data frames, the data frames stored in the second buffer include audio data frames, and the data frames stored in the third buffer include character data frames.

9. (Canceled)